AMENDMENTS TO THE CLAIMS

A listing of all claims and their current status in accordance with 37 C.F.R. §1.121(2) is provided below. This listing of claims replaces all prior versions and listings of claims in the application.

1. (Currently Amended) Video coding method of exploiting the temporal redundancy between successive frames in a video sequence, comprising the steps wherein a reference frame, called an I-frame, is first approximated by a collection of basis function, called atoms, and wherein either the atoms are quantized, entropy coded and sent to a decoder or t the original I-frame is encoded and transmitted to the decoder using any frame codec, and wherein following predicted frames, called P-frames, are approximated by the geometric transformations of the basis functions (atoms) describing the previous frame, and that the parameters of the geometric transformation are quantized, entropy coded and sent to a decoder in order to reconstruct the predicted frames, wherein the I-frame is approximated by a linear combination of N atoms $g_m(x,y)$:

$$I(x,y) = \sum_{n=0}^{N-1} c_n g_m(x,y)$$

selected in a redundant, structured library and indexed by a string of parameters γ_n representing the geometric transformations applied to the generating mother function g(x,y) where the c_n are weighting coefficients.

2. (Cancelled)

3. (Previously Presented) Video coding method according to claim 2, wherein the atoms occurring in the decomposition are chosen using the Matching Pursuit algorithm.

4. (Previously Presented) Video coding method according to claim 1, wherein the parameters and coefficients of the atoms are quantized and entropy coded.

5. (Previously Presented) Video coding method according to claim 4, wherein the quantization of the parameters and the coefficients vary across time, and the variation is controlled by a rate control unit.

6. (Previously Presented) Video coding method according to claim 1, wherein the method is used together with a residual frame based texture codec that encodes the differences between the original frames and the ones reconstructed using the compensated atoms.

7. (Previously Presented) Video coding method according to claim 1, wherein the geometric features (atoms) of the I-frame are computed from the quantized frames at the encoder and decoder and are not transmitted.

8. (Previously Presented) Video coding method according to claim 1, wherein the geometric features (atoms) are re-computed after each quantized frame at the encoder and decoder and replace the previous prediction.

9. (Previously Presented) Video coding method according to claim 1, wherein the geometric transformations used to build the library are composed of translations, anisotropic dilations and rotations, applied to a generating mother function g(x,y) by means of the following change of variables:

$$g_{\gamma}(x,y) = \frac{1}{\sqrt{a_1 a_2}} g(x_{\gamma}, y_{\gamma}), \text{ where}$$

$$x_{\gamma} = \frac{\cos\vartheta(x-b_1) - \sin\vartheta(y-b_2)}{a_1}$$

$$y_{\gamma} = \frac{\sin\vartheta(x-b_1) + \cos\vartheta(y-b_1)}{a_2}$$

10. (Previously Presented) Video coding method according to claim 9, wherein the generating mother function is of the following form:

$$g(x,y) = (1-x^2)\exp\left(-\frac{x^2+y^2}{2}\right).$$